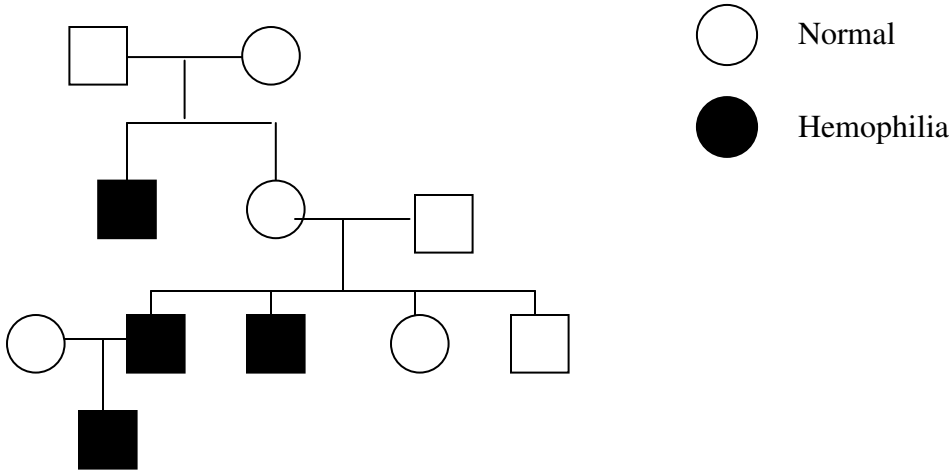
Name _____

Sex-linked Pedigrees

Below is a pedigree tracing the inheritance of hemophilia, a recessive sex-linked disorder. Use (H) for normal and (h) for hemophilia as the alleles on each X chromosome.



1. Label the genotype of each individual.

A _____ B _____ C _____

D _____ E _____ F _____

G _____ H _____ I _____ OR _____

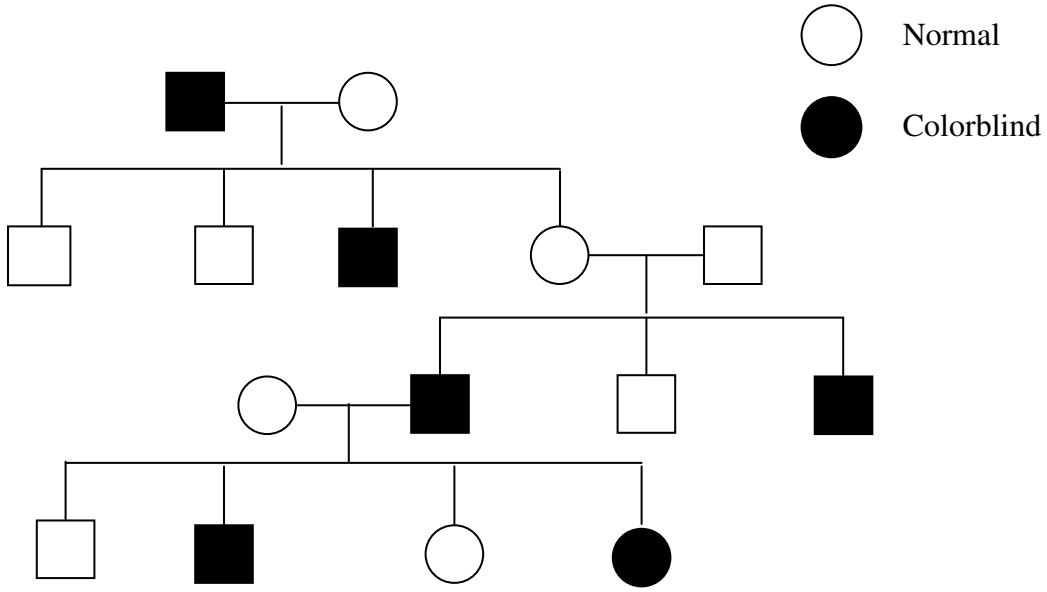
J _____ K _____

2. Why do sex-linked defects occur more frequently in males?

3. Why are there 2 options for the genotype of individual I?

4. Which individuals above are considered carriers? (use their letter)

Below is a pedigree tracing the inheritance of colorblindness, a recessive sex-linked trait.
Use (N) for normal and (n) for colorblind as the alleles on each X chromosome.



5. Give the genotypes of the labeled individuals.

A _____ B _____ C _____

D _____ E _____ F _____

G _____ H _____ I _____

J _____ K _____ L _____

M _____ N _____ O _____

6. Is it possible for a normal male and a normal female to have a child who is colorblind? Explain why or why not.

7. Colorblind males have to get the recessive allele from their _____.
(choose mother or father)

8. Can a normal male have a colorblind daughter? Explain why or why not.

9. Create the following pedigree tracing the inheritance of hemophilia, a **recessive sex-linked** disorder. Use (H) for normal and (h) for hemophilia as the alleles on each X chromosome.

Be sure to:

- Use the correct symbols for males vs females
- Connect the symbols with appropriate lines to show marriage, offspring, and siblings
- Fill in the appropriate symbols to show individuals with the trait
    - Indicate which individuals MUST be carriers by shading in half of their symbol
- Record each individuals genotype in the space provided at the bottom

Family #1
A male with hemophilia (A) marries a normal female (B).
They have 3 kids; a female with hemophilia (C), a normal male (D), and a normal female (E).

Family #2
A normal male (F) marries a normal female (G).
They have 2 sons; one is normal (H), and one has hemophilia (I).

The normal daughter from the first relationship (E), marries the normal son from the second relationship (H).
They have 2 kids; a male with hemophilia (J) and a normal female (K).

Record the genotypes of each individual below:

A _____ B _____ C _____

D _____ E _____ F _____

G _____ H _____ I _____

J _____ K _____ OR _____

10. Create the following pedigree tracing the inheritance of colorblindness, **a recessive sex-linked** trait. Use (N) for normal and (n) for colorblind as the alleles on each X chromosome.

Be sure to:

- Use the correct symbols for males vs females
- Connect the symbols with appropriate lines to show marriage, offspring, and siblings
- Fill in the appropriate symbols to show individuals with the trait
    - Indicate which individuals MUST be carriers by shading in half of their symbol
- Record each individuals genotype in the space provided at the bottom

A normal male (A) marries a normal female (B).
They have 3 sons; a colorblind male (C), and two normal males (D and E).

Their third son (E) marries a colorblind female (F).
They have 3 kids; two colorblind males (G and H), and one normal female (I).

Their normal daughter (I), marries a normal male (J).
They have 1 colorblind son (K).

Record the genotypes of each individual below:

A _____ B _____ C _____

D _____ E _____ F _____

G _____ H _____ I _____

J _____ K _____